NAVSEA
STANDARD ITEM

FY-06

ITEM NO: 009-46
DATE: 29 JUL 2004
CATEGORY: II

1. SCOPE:

1.1 Title: Butterfly Valve, Synthetic and Metal Seated; repair

2. REFERENCES:

2.1 None.

3. REQUIREMENTS:

3.1 Matchmark valve parts.

(V) "INSPECT PARTS FOR DEFECTS"

3.2 Disassemble, clean internal and external surfaces free of foreign matter (including paint), and inspect parts for defects.

3.3 Repair valve as follows:

3.3.1 Polish stem to remove raised edges and foreign matter.

3.3.2 Chase and tap exposed threaded areas.

3.3.3 Machine, grind, or lap and spot-in metal-to-metal seat to disc to obtain a leakage rate at or below that allowed in 3.5.4.

3.3.4 Polish seating surface of synthetic seated valve to remove high spots, nicks, and burrs.

3.4 Assemble valve installing new bushings, O-Rings, V-Rings, valve liner, seat assemblies, washers, pins, and fasteners in accordance with manufacturer's specifications or instructions.

3.5 Hydrostatically test valve as follows:

3.5.1 Hydrostatic test equipment shall have the following capabilities:

3.5.1.1 Manual overpressure protection release valve.

3.5.1.2 Self-actuated and resetting relief valve with a set point no greater than 100 PSIG above the test pressure or 10 percent above the test pressure, whichever is less.

3.5.1.3 Master and backup test gages with gage range and graduation shown on Table One.

3.5.1.4 Protection equipment shall be accessible and test gages shall be located where clearly visible and readable to pump operator and inspector.

(V)(G) "SEAT TIGHTNESS"

3.5.2 Test for seat tightness alternately on each side of the disc with opposite side open for inspection.

3.5.3 Disc shall be seated by hand force.

3.5.4 Test shall be continued for a minimum of ***3*** minutes if there is no evidence of leakage, or in the event of visible leakage, until accurate determination of leakage can be made.

3.5.5 Leakage rate of metal-to-metal seated valves conforming to MIL-V-22133, Type II shall not exceed the following criteria:

Valve size inches	Leakage rate gal/min	Valve size inches	Leakage rate gal/min
2	1.5	10	35
2-1/2	2.25	12	50
3	3.25	14	60
4	6	16	80
5	9.5	18	100
6	14	20	140
8	25	24	200

3.5.5.1 Leakage rate of metal-to-metal seated valves conforming to MIL-V-24624 shall have a maximum seat leakage rate of 10 cubic centimeters per inch of nominal pipe size per hour.

3.5.6 Allowable leakage for synthetic seated valve: None.

4. NOTES:

4.1 The test pressure of 3.5.2 will be specified in Work Item.

4.2 Repair of valve operating gear will be specified in Work Item.

TABLE ONE - MASTER GAGE SELECTION FOR HYDROSTATIC TESTS

Maximum Test Pressure (lb/in^2g)		Master Gage Range (lb/in^2g)***		Master Gage Maximum Graduation Size (lb/in^2g)
From*	To**	From	To	
5000	9500	0	10000	100
3000	5800	0	6000	30
2500	4800	0	5000	30
1500	2800	0	3000	20
1000	1800	0	2000	15
750	1300	0	1500	10
500	800	0	1000	10
250	500	0	600	5
150	250	0	300	2
100	175	0	200	2
75	125	0	160	1
50	80	0	100	1
20	50	0	60	0.5
10	25	0	30	0.2
7	10	0	15	0.1
5	7	0	10	0.1

NOTES:

1. Master gage and back-up gages shall track within ***2*** percent of each other.

2. System maximum test pressures shall be determined by applicable overhaul specification, building specification, or other governing documents.

* Values agree with the requirement that gage range shall not exceed 200 percent of maximum test pressure except for gage ranges 0 to 60 and below.

** Values allow for reading pressures up to relief valve setting.

*** Exceptions to the values given in this table may be approved locally by Design, based on an evaluation of test pressure, gage range, and specific application.